

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

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In re Application of: : Examiner: Marlon A. Arce
: :
Walter KOGEL et al. :
: :
For: HYDRAULIC POWER STEERING :
SYSTEM :
: :
Filed: July 10, 2008 : Art Unit: 3611
: :
Serial No.: 10/590,168 :
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Commissioner for Patents
P.O. Box 1450
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APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

SIR:

On October 13, 2010, Appellants filed a Notice of Appeal from the last decision of the Examiner contained in the Final Office Action dated July 13, 2010 in the above-identified patent application.

In accordance with 37 C.F.R. § 41.37, this brief is submitted in support of the appeal of the rejections of claims 10 to 14, 18 and 19. For at least the reasons set forth below, the final rejections of claims 10 to 14, 18 and 19 should be reversed.

1. REAL PARTY IN INTEREST

The real party in interest in the present appeal is ZF LENKSYSTEME GmbH of Schwaebisch Gmuend in the Federal Republic of Germany, which is the assignee of the entire right, title and interest in and to the present application.

2. RELATED APPEALS AND INTERFERENCES

There are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to

Appellants or the assignee, ZF LENKSYSTEME GmbH, “which may be related to, directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.”

3. STATUS OF CLAIMS

Claims 1 to 9 have been canceled.

Claims 10 to 19 are pending.

Claims 15 to 17 have been allowed.

Claims 10 to 14 and 18 stand rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,612,393 (“Bohner”).

Claim 19 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Bohner.

A copy of the appealed claims, *i.e.*, claims 10 to 14, 18 and 19, is attached hereto in the Claims Appendix.

4. STATUS OF AMENDMENTS

In response to the Final Office Action dated July 13, 2010, Appellants filed a “Reply Under 37 C.F.R. § 1.116” (“the Reply”) on September 7, 2010. The Reply included proposed amendments to claims 16 and 17. The Advisory Action dated October 15, 2010 indicates that the proposed claim amendments would be entered. As such, it is Appellants’ understanding that the proposed claim amendments have been entered, such that claims 16 and 17 have been allowed, and the claims as included in the annexed “Claims Appendix” accurately reflect the currently appealed claims.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The claims on appeal include one independent claim, *i.e.*, claim 10.

Independent claim 10 relates to a hydraulic power steering system 1 for a vehicle. *Specification*, page 4, lines 2 to 5; page 5, lines 8 to 11, and 23 to 24; and Figures 1 to 5. Claim 10 recites that the system 1 includes a servo cylinder 4 including a piston rod 3. *Specification*, page 4, lines 16 to 17; and Figures 1 to 5. Claim 10 recites that the system 1 includes a servo valve 2 including control parts 10, relative movement of the control parts 10 of the servo valve 2 adapted to actuate the piston rod 3 to change at least one steering angle of a wheel 5 operatively connected to the piston rod 3. *Specification*, page 4, lines 5 to 24; and Figures 1 to 5. Claim 10 recites that the system 1 includes a rack 7. *Specification*, page

4, lines 26 to 29; and Figures 1 to 5. Claim 10 recites that the system 1 includes an electric servo motor 6 adapted to drive the rack 7 with the servo cylinder 4 to adjust the steering angle of the wheel 5 in a same direction. *Specification*, page 4, lines 26 to 33; page 5, lines 11 to 14; and Figures 1 to 5. Claim 10 recites that the system 1 includes a steering shaft 16 adapted to act on a control part 10 of the servo valve 2. *Specification*, page 5, lines 14 to 21; and Figures 1 to 5. Claim 10 recites that the system 1 includes a drive output member 11, the servo valve 2 adapted to act on the rack 7 via the drive output member 11. *Specification*, page 5, lines 11 to 32; and Figures 1 to 5. Claim 10 recites that the rack 7 and the piston rod 3 are adapted to act in a parallel arrangement with one another on an addition member 8 to jointly adjust the steering angle of the wheel 5. *Specification*, page 4, line 29 to page 5, line 6; and Figures 1 to 5.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. Whether claims 10 to 14 and 18 are patentable under 35 U.S.C. § 102(e) over Bohner.
- B. Whether claim 19 is patentable under 35 U.S.C. § 103(a) over Bohner.

7. ARGUMENTS

A. Rejection of Claims 10 to 14 and 18 Under 35 U.S.C. § 102(e)

Claims 10 to 14 and 18 were rejected under 35 U.S.C. § 102(e) as anticipated by Bohner. It is respectfully submitted that Bohner does not anticipate the present claims for at least the following reasons.

To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of Calif.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the . . . claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). That is, the prior art must describe the elements arranged as required by the claims. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). In other words, to be anticipatory, a single prior art reference must show all of the limitations of the claims arranged or combined in the same way as recited in the claims. *Net Moneyin, Inc. v. Verisign, Inc.*, 545 F.3d 1359 (Fed. Cir. 2008).

Claim 10 relates to a hydraulic power steering system, including, *inter alia*, the features of a servo cylinder including a piston rod, and a rack, in which *the rack and the*

piston rod are adapted to act in a parallel arrangement with one another on an addition member to jointly adjust the steering angle of the wheel.

Bohner does not disclose, or even suggest, all of the features included in claim 10. In this regard, Bohner merely describes a steering system including a normal operating system, an auxiliary operating system, and an emergency operating system, each of which is operated separately from the other systems. Col. 2, lines 26 to 44. For example, Bohner states that both the auxiliary system and emergency system are shut off during normal mode, both the normal system and emergency system are shut off during transitional phase, and both the normal system and auxiliary system are shut off during emergency mode. Col. 4, lines 27 to 34; col. 5, lines 27 to 33, and 52 to 59. Moreover, Bohner shows the separate operation of each system graphically in Figure 3. Col. 6, lines 40 to 51. Thus, nowhere does Bohner disclose *jointly adjusting* the steering angle.

Nonetheless, the Final Office Action at page 2 asserts that “Examiner believes that the applicant[’s] claims are not specific to a system that has to be operational continuously at all times.” This assertion cannot be understood because “continuous operation at all times,” as asserted by the Final Office Action, has not been argued, or claimed. Instead, as set forth above, claim 10 includes the feature of *a rack and a piston rod adapted to act in a parallel arrangement with one another on an addition member to jointly adjust a steering angle*.

The Final Office Action at page 2 apparently asserts that since movement of a connecting rod 3 of Bohner may also cause movement of another connecting rod 3’, this somehow constitutes jointly adjusting. Appellants respectfully disagree. In this regard, the movement of one connecting rod 3 causing movement of the other connecting rod 3’ is directly contrary to the claimed subject matter of a rack and a piston rod jointly adjusting a steering angle. Nowhere does Bohner disclose that its connecting rods 3 and 3’ *jointly adjust* the steering angle since each of the normal system, auxiliary system, and emergency system of Bohner functions separately from each other. Further, Bohner states that “provision may be made to arrange piston-cylinder unit 4 and 4’ on a **common connecting rod 3** and/or to couple it thereto.” Col. 7, lines 26 to 28 (emphasis added). Therefore, Bohner clearly states that only a single common connecting rod 3 is required in its system to adjust the steering angle because each of its systems functions separately without any jointly adjusting of the steering angle. Therefore, Bohner does not disclose, or even suggest, the feature that *a rack and a piston rod are adapted to act in a parallel arrangement with one another on an addition member to jointly adjust a steering angle of a wheel*.

Moreover, Bohner states that “in the illustrated example embodiment, connecting rod 3, is configured regionally as a steering rack.” Col. 3, lines 55 to 57. Thus, as shown in Figures 1 and 4 of Bohner, the piston-cylinder unit 4 of connecting rod 3 is arranged *serially* with rack portion of connecting rod 3, which is in direct contrast with the presently claimed subject matter of a rack and a piston rod adapted to act in *a parallel arrangement*. That is, when the normal system of Bohner that utilizes connecting rod 3 is in operation, the piston-cylinder unit 4 and rack of connecting rod 3 act in a serial arrangement, not a parallel arrangement. In this regard, the specification describes potential advantages of the claimed parallel arrangement, e.g., at page 5, lines 1 to 6. Therefore, Bohner does not disclose, or even suggest, the feature that *a rack and a piston rod are adapted to act in a parallel arrangement with one another on an addition member to jointly adjust a steering angle of a wheel*.

Furthermore, in the Advisory Action, the Examiner refers to column 3, lines 36 to 40 of Bohner and conclusorily asserts that “there is a transition time between normal operation and auxiliary operation[, and] during that transition time, both systems should be operational or substantially similar or jointly working in parallel as to face [sic] out the transition time.” However, it is respectfully submitted that the cited section at column 3, lines 36 to 40 of Bohner merely refers to pressure connections of control valve 7 to hydraulic reservoir 11. Although Bohner at column 2, lines 36 to 40 refers to a transitional phase, Bohner explicitly states that “the auxiliary operating system . . . is provided for carrying out the transitional phase.” Thus, contrary to the Examiner’s assertion that “there is a transition time between normal operation and auxiliary operation,” Bohner specifically states that the auxiliary operating system itself constitutes the transitional phase between normal operation and emergency operation. Col. 2, lines 35 to 45. Further, as more fully set forth above, Bohner states that “[s]hould an error occur, shutoff valve 14 [of normal operating system] is de-energized, so that the entire hydraulic circuit . . . becomes inactive. At the same time, control system 29’ [of auxiliary operating system] assumes the further control work.” Thus, Bohner plainly states that its normal operating system and auxiliary operating system function *independently* and *serially* of each other; that is, when normal operating system is deactivated, then auxiliary operating system becomes active. Therefore, Bohner does not disclose, or even suggest, the feature that *a rack and a piston rod are adapted to act in a parallel arrangement with one another on an addition member to jointly adjust a steering angle of a wheel*.

Accordingly, Bohner does not disclose, or even suggest, all of the features included in claim 10. As such, it is respectfully submitted that Bohner does not anticipate claim 10.

As for claims 11 to 14 and 18, which ultimately depend from claim 10 and therefore include all of the features included in claim 10, it is respectfully submitted that Bohner does not anticipate these dependent claims for at least the same reasons more fully set forth above.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

B. Rejection of Claim 19 Under 35 U.S.C. § 103(a)

Claim 19 was rejected under 35 U.S.C. § 103(a) as unpatentable over Bohner. It is respectfully submitted that Bohner does not render unpatentable the presently pending claim for at least the following reasons.

Claim 19 depends from claim 10. As more fully set forth above, Bohner does not disclose, or even suggest, all of the features included in claim 10, from which claim 19 depends. As such, it is respectfully submitted that Bohner does not render unpatentable claim 19, which depends from claim 10.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

8. CLAIMS APPENDIX

A “Claims Appendix” is attached hereto and appears on the two (2) pages numbered “Claims Appendix 1” to “Claims Appendix 2.”

9. EVIDENCE APPENDIX

No evidence has been submitted pursuant to 37 C.F.R. §§ 1.130, 1.131 or 1.132. No other evidence has been entered by the Examiner or relied upon by Appellants in the appeal. An “Evidence Appendix” is nevertheless attached hereto and appears on the one (1) page numbered “Evidence Appendix.”

10. RELATED PROCEEDINGS APPENDIX

As indicated above in Section 2, above, “[t]here are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the

undersigned to be known to Appellants or the assignee, ZF LENKSYSTEME GmbH, ‘which may be related to, directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.’” As such, there are no “decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]” to be submitted. A “Related Proceedings Appendix” is nevertheless attached hereto and appears on the one (1) page numbered “Related Proceedings Appendix.”

11. CONCLUSION

For at least the reasons indicated above, Appellants respectfully submit that the art of record does not disclose or suggest the subject matter as recited in the claims of the above-identified application. Accordingly, it is respectfully submitted that the subject matter as set forth in the claims of the present application is patentable.

In view of all of the foregoing, reversal of all of the rejections set forth in the Final Office Action is therefore respectfully requested.

Respectfully submitted,

Dated: December 9, 2010

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CLAIMS APPENDIX

10. A hydraulic power steering system for a vehicle, comprising:
 - a servo cylinder including a piston rod;
 - a servo valve including control parts, relative movement of the control parts of the servo valve adapted to actuate the piston rod to change at least one steering angle of a wheel operatively connected to the piston rod;
 - a rack;
 - an electric servo motor adapted to drive the rack with the servo cylinder to adjust the steering angle of the wheel in a same direction;
 - a steering shaft adapted to act on a control part of the servo valve; and
 - a drive output member, the servo valve adapted to act on the rack via the drive output member;wherein the rack and the piston rod are adapted to act in a parallel arrangement with one another on an addition member to jointly adjust the steering angle of the wheel.
11. The hydraulic power steering system according to claim 10, wherein the hydraulic power steering system is arranged as an electro-hydraulic power steering system for a motor vehicle.
12. The hydraulic power steering system according to claim 10, wherein the rack and the piston rod are one of (a) fixedly and (b) articulatedly connected to the addition member.
13. The hydraulic power steering system according to claim 10, wherein the electric servo motor is adapted to act on the control part of the servo valve by a gearing.
14. The hydraulic power steering system according to claim 13, wherein the control part is connected to the drive output member.
18. The hydraulic power steering system according to claim 10, wherein two electric servo motors are adapted to act at least one of (a) on the rack and (b) on the control part of the servo valve.

19. The hydraulic power steering system according to claim 10, wherein the hydraulic power steering system includes electric servo motors of different power, the hydraulic power steering system adapted to transmit different levels of steering power.

EVIDENCE APPENDIX

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RELATED PROCEEDINGS APPENDIX

As indicated above in Section 2 of this Appeal Brief, “[t]here are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the assignee, ZF LENKSYSTEME GmbH, ‘which may be related to, directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.’” As such, there are no “decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]” to be submitted.